

## Small One Board USB2.0

## Color / Monochrome Cameras

STC-SC33USB / SB33USB (VGA)

STC-SC83USB / SB83USB (XGA)

STC-SC133USB / SB133USB (1.3M)

### Product Specifications

Sentech Co., Ltd

## Caution for the PC with the Intel Core i3, i5 or i7

When use the USB camera with some PC, which has the Intel Core i3, i5 or i7, may occur following issue:

CANNOT get any image from the USB camera.

Frame drops frequently

(This issue may occurred for the other manufacture USB camera too)

Cause of this issue:

The image data cannot transfer to the PC because the Intel Core i3, i5 or i7 CPU switch to the power save mode frequently while the image is transferring.

Solution for this issue:

1. Disable the power save mode with change the BIOS settings.

Please change BIOS setting with your responsibility.

The power consumption and the heat of the PC are increased when disable the power save mode. Please understand and accept this before disable the power save mode.

2. Disable the power save mode with the Sentech PC power management software.

The power save mode can disable with the Sentech PC power management software "StPowerCtrl".

Please contact to the Sales representative about this software.

The power consumption and the heat of the PC are increased when disable the power save mode. Please understand and accept this before disable the power save mode.

3. Change the camera clock from "Normal" to "1/2" or "1/4". (Reduce the frame rate)

## Caution for the connecting USB device

Please DO NOT connects or disconnect any USB devices including USB memory while use this USB camera. Its possibility to the USB camera DOES NOT recognize after connect or disconnect USB devices.

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## 1 Overview

This document describes the specification of the following cameras.

STC-SC33USB / SB33USB	(VGA)
STC-SC83USB / SB83USB	(XGA)
STC-SC133USB / SB133USB	(1.3M)

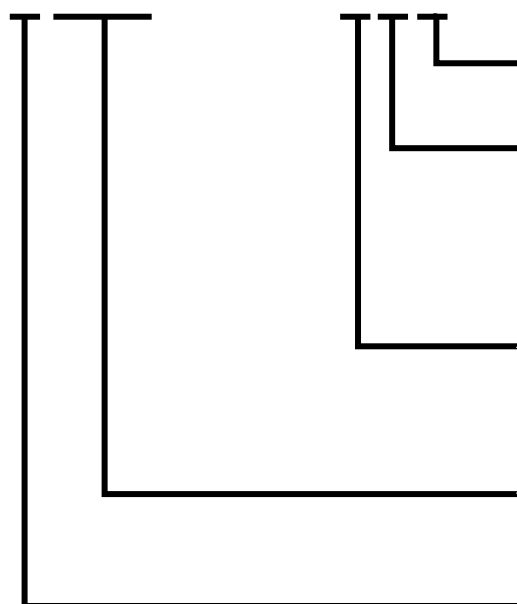
### 1.1 Features

- Small Size
- New camera reset function
- Up to 64 pixel blemish static collection
- 8,10,12bit output(10,12bit work only on Trigger, or 1/2 clock free run mode)

These models of cameras are smaller and lower cost than another models(STC-TC/TB\*\*USB-B series • STC-MC/MB\*\*USB series).One board design can achieve such a drastically changing. The port can now reset the camera without needing to reseed the USB cable. These models of cameras have Color/Monochrome, various Lens Mounts. Up to 64 pixel blemish static collection is supported along with 8,10,12bit data output(10,12bit work only on Trigger mode, or 1/2 clock free run mode. For data transfer bandwidth).

### 1.2 Specification of Naming

# STC-SxxxxUSB-xxx



L: Micro Lens Mount

CS: CS Mount

None: Base Mount

L: USB "Light" angle connector

S: USB "Straight" angle connector only on Board Type

Both model have Light angle IO connector

A: Case Type

B: Board Type

Resolution

33: VGA

83: XGA

133:1.3M

C: Color

B: Monochrome

Figure 1. Naming Rule

## 1.3 Support Application

These models work on Sentech's viewing software(StCamSWare) ,SDK(TriggerSDK,StandardSDK) and samle codes. Some part of functions are not same as another models(STC-TC/TB\*\*USB-B series • STC-MC/MB\*\*USB series).When user use the camera, please pay attention to the difference.

e.g.

- LED does not work on sample code (StTrgDisplayVC2005.exe).
- Two IO works on these models, even Sentech's viewing software(StCamSWare) show four IO.
- Product ID can be known through StCam\_GetProductNam on SDK. However it can be obtained through StCam\_GetProductNam.

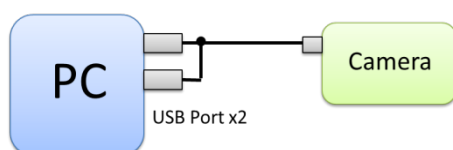
## 1.4 Option model

Sentech could provide the option model that does not mention on this document. As for the detail, please ask the sales representative on user's area.

## 1.5 Power Supply

Sentech recommend to use the USB port power cable when use uses 90fps with partial (or binning) mode on STC-SC33USB/STC-SB33USB. For the out of range on USB specification of current consumption.

USB port power cable



## 1.6 Pixel Blemish Static Collection and Saving Camera Settings

These models have pixel blemish static collection and saving camera settings on the camera. User can recover to the factory setting and save the camera setting on PC also. As for the detail, please see the user's guide of "StCamSWare\_v\*\*\_Manual\_EN".

## 2 Specifications

### 2.1 Electronic specifications / Mechanical specifications / Environmental specifications

#### 2.1.1 STC-SC33USB / STC-SB33USB

**Table 1. Specifications of STC-SC33USB / STC-SB33USB**

**Bold: Initial Value**

Product			STC-SC33USB		STC-SB33USB		
Electronic Specifications	Image Sensor		1/3" interline VGA color progressive CCD: ICX424AQ(Sony)		1/3" interline VGA monochrome progressive CCD: ICX424AL(Sony)		
			692(H) x 504(V)				
			659(H) x 494(V)				
			5.79(H) x 4.89(V) mm				
			7.40(H) x 7.40(V) μm				
	Scanning system		Progressive				
	Resolution		640(H) x 480(V) (Full scanning) 640(H) x 224(V) (1/2 partial scanning) 640(H) x 80(V) (1/4 partial scanning)				
	Scanning methods		Full scanning, 1/1 partial scanning, 1/2 partial scanning, 1/4 partial scanning, Variable partial scanning		Full scanning, 1/1 partial scanning, 1/2 partial scanning, 1/4 partial scanning, Variable partial scanning, Binning scanning, Binning 1/1 partial scanning, Binning 1/2 partial scanning, Binning 1/4 partial scanning, Binning variable partial scanning		
	Maximum framer rate	Full scanning	59.94 fps (Normal) / 29.97 fps (1/2clock) / 14.98 fps (1/4clock) / 89.91 fps (3/2clock) *Note1				
		1/2 partial scanning	120.11 fps (Normal) / 60.05 fsp (1/2clock) / 30.02 fps (1/4clock) / 180.165 fps (3/2clock)				
		1/4 partial scanning	240.22 fps (Normal) / 120.11 fps (1/2clock) / 60.055 fps (1/4clock) / 360.33 fps (3/2clock)				
	Pixel frequency		24.5454 MHz (Normal) / 12.2727 MHz (1/2clock) / 6.13635 MHz (1/4clock) / 36.818 MHz (3/2clock)				
	Video output		8bit / 10bit / 12bit *Note2				
	Minimum scene illumination *Note2		7.14lx at F1.2		0.07lx at F1.2		
	Sync. System		Internal				
	Electronic shutter		Auto / Manual (software selectable)				
			Normal	1/100,000 to 1/22.40 seconds(default 1/29.18 seconds)			
			1/2 clock	1/100,000 to 1/11.20 seconds			
			1/4 clock	1/100,000 to 1/5.60 seconds			
	Gain		Auto / Manual (software selectable,default: x3.55)				
	Gamma		Manual (software selectable,default: 1)				
	White balance		Auto / Manual / One shot (software selectable)		-		
	Trigger mode		Free-run / Edge preset trigger / Pulse width trigger / Start & stop trigger (software selectable) (Hardware trigger and Software trigger are available)				
Camera Reset		Support on Pin 5					
LED Status		Green(Flicker):Power-On, Green:Camera works					
Pixel Blemish Correction		64 Points (default:off)					
Input/output		USB2.0 High speed					
Power	Input voltage	+5 V through USB connector (+4.4 to +5.25V)					
	Consumption	less than 2.0 W *Note3					
Mechanical Specifications	Dimensions		Board Type::36(W) x 36(H) x 15.3(D) CS-Mount(without USB connector)				
	Lens mount		CS mount / MicroLens Mount (M12 P0.5) / None Mount				
	Weight		approximately 15g				
	Interface connector	Angle	USB: mini-B USB connector				
IO Connector : SM05B-SRSS-TB (JST) 5pin							
Environmental Specifications	Operational temperature		0 to 40 deg. C				
	Storage temperature		-30 to 65 deg. C				
	Vibration *Note4		20Hz to 200Hz to 20Hz (5min./cycle), accceleration 10G, 3 directions 30 min. each				
	Shock *Note4		Acceleration 70G, half amplitude 6ms, 3 directions 3 times each				
	Standard compliancy		Case Type: EMS: EN61000-6-2, EMI: EN55011				
RoHS		RoHS compliance					

\*Note1: [Default setting of Maximum Frame Rate]

Bold : On Sentech Viewing software(StcamSWare), Normal: Another condition

\*Note2: As for the 10,12bit output, clock speed should be slow to obtain the correct frame rate.

\*Note3: Power consumption could be higher than this number under 90fps with partial scan.

\*Note4: Lens: COSMICAR/PENTAX,C1614-M with C-Adaptor

## Spectral Sensitivity Characteristics

STC-SC33USB (with IR cut filter)

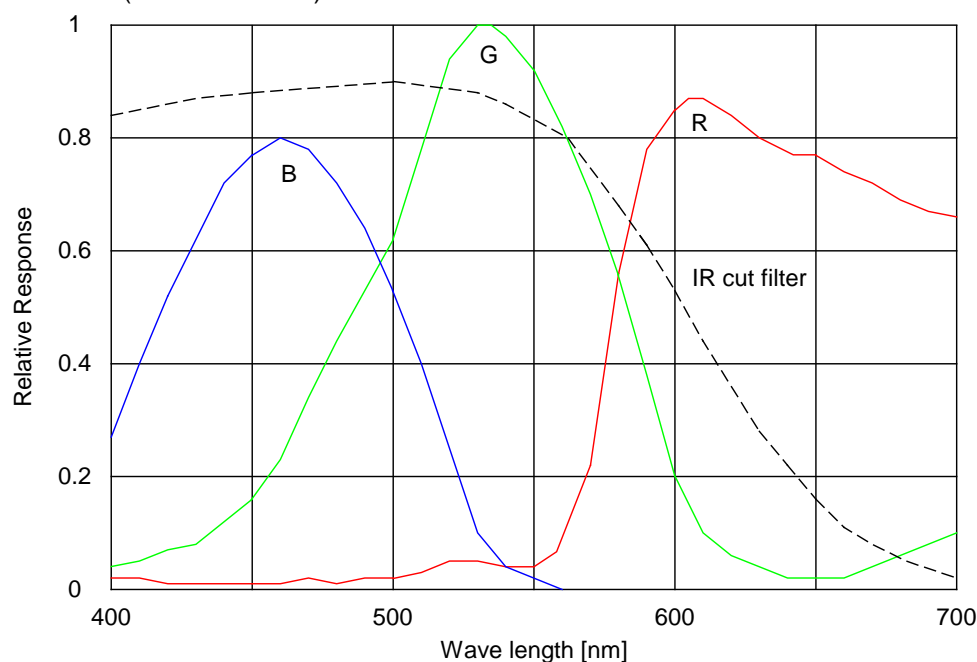


Figure 2.Spectral Sensitivity Characteristics on STC-SC33USB (with IR cut filter)

STC-SB33USB

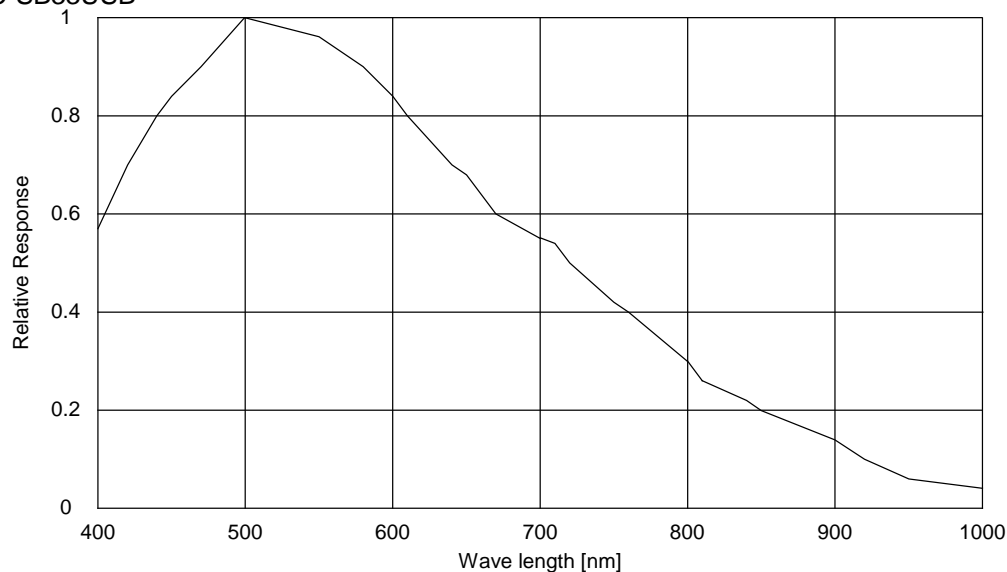


Figure 3.Spectral Sensitivity Characteristics on STC-SB33USB



## 2.1.2 STC-SC83USB / STC-SB83USB

**Table 2. Specifications of STC-SC83USB / STC-SB83USB**

**Bold: Initial Value**

Product		STC-SC83USB	STC-SB83USB
Electronic Specifications	Image Sensor	1/3" interline XGA color progressive CCD: ICX204AK (Sony)	1/3" interline XGA monochrome progressive CCD: ICX204AL (Sony)
	Total picture elements	1077 (H) x 788 (V)	1077 (H) x 788 (V)
	Effective picture elements	1034 (H) x 779 (V)	1034 (H) x 779 (V)
	Chip size	5.80 (H) x 4.92 (V) mm	5.80 (H) x 4.92 (V) mm
	Cell size	4.65 (H) x 4.65 (V) $\mu$ m	4.65 (H) x 4.65 (V) $\mu$ m
	Scanning system	Progressive	Progressive
	Resolution	1024 (H) x 768 (V) (Full scanning) 1024 (H) x 344 (V) (1/2 partial scanning) 1024 (H) x 136 (V) (1/4 partial scanning)	1024 (H) x 768 (V) (Full scanning) 1024 (H) x 344 (V) (1/2 partial scanning) 1024 (H) x 136 (V) (1/4 partial scanning)
	Scanning methods	<b>Full scanning,</b> 1/1 partial scanning, 1/2 partial scanning, 1/4 partial scanning, Variable partial scanning	<b>Full scanning,</b> 1/1 partial scanning, 1/2 partial scanning, 1/4 partial scanning, Variable partial scanning, Binning scanning, Binning 1/1 partial scanning, Binning 1/2 partial scanning, Binning 1/4 partial scanning, Binning variable partial scanning
	Maximum framer rate	<b>29.18 fps</b> (Normal) / 14.59 fps (1/2 clock) / 7.295 fps (1/4 clock) 60.02 fps (Normal) / 30.01 fps (1/2 clock) / 15.00 fps (1/4 clock) 120.35 fps (Normal) / 60.175 fps (1/2 clock) / 30.087 fps (1/4 clock)	<b>29.18 fps</b> (Normal) / 14.59 fps (1/2 clock) / 7.295 fps (1/4 clock) 60.02 fps (Normal) / 30.01 fps (1/2 clock) / 15.00 fps (1/4 clock) 120.35 fps (Normal) / 60.175 fps (1/2 clock) / 30.087 fps (1/4 clock)
	Pixel frequency	29.5 MHz (Normal) / 14.75 MHz (1/2 clock) / 7.375 MHz (1/4 clock)	29.5 MHz (Normal) / 14.75 MHz (1/2 clock) / 7.375 MHz (1/4 clock)
	Video output	<b>8bit / 10bit / 12bit *Note1</b>	<b>8bit / 10bit / 12bit *Note1</b>
	Minimum scene illumination	16.54lx at F1.2	0.31lx at F1.2
	Sync. System	Internal	Internal
	Electronic shutter	Auto / <b>Manual</b> (software selectable)	Auto / <b>Manual</b> (software selectable)
	Normal	1/100,000 to 1/22.40 seconds(default 1/29.18 seconds)	1/100,000 to 1/22.40 seconds(default 1/29.18 seconds)
	1/2 clock	1/100,000 to 1/11.20 seconds	1/100,000 to 1/11.20 seconds
	1/4 clock	1/100,000 to 1/5.60 seconds	1/100,000 to 1/5.60 seconds
	Gain	Auto / <b>Manual</b> (software selectable, <b>default: x3.55</b> )	Auto / <b>Manual</b> (software selectable, <b>default: x3.55</b> )
	Gamma	Manual (software selectable, <b>default: 1</b> )	Manual (software selectable, <b>default: 1</b> )
	White balance	<b>Auto / Manual / One shot</b> (software selectable)	<b>Auto / Manual / One shot</b> (software selectable)
	Trigger mode	<b>Free-run</b> / Edge preset trigger / Pulse width trigger / Start & stop trigger (software selectable) (Hardware trigger and Software trigger are available)	<b>Free-run</b> / Edge preset trigger / Pulse width trigger / Start & stop trigger (software selectable) (Hardware trigger and Software trigger are available)
	Camera Reset	Support on Pin 5	Support on Pin 5
	LED Status	Green(Flicker):Power-On, Green:Camera works	Green(Flicker):Power-On, Green:Camera works
	Pixel Blemish Correction	64 Points	64 Points
	Input/output	USB2.0 High speed	USB2.0 High speed
Mechanical Specifications	Power	+5 V through USB connector (+4.4 to +5.25V)	+5 V through USB connector (+4.4 to +5.25V)
	Consumption	Less than 1.4W	Less than 1.4W
	Dimensions	Board Type::36(W) x 36(H) x 15.3(D) CS-Mount(without USB connector)	Board Type::36(W) x 36(H) x 15.3(D) CS-Mount(without USB connector)
	Lens mount	CS mount / MicroLens Mount (M12 P0.5) / None Mount	CS mount / MicroLens Mount (M12 P0.5) / None Mount
Environmental Specifications	Weight	Approximately 15g	Approximately 15g
	Interface connector	USB: mini-B USB connector	USB: mini-B USB connector
	Angle	IO Connector : SM05B-SRSS-TB (JST) 5pin	IO Connector : SM05B-SRSS-TB (JST) 5pin
	Operational temperature	0 to 40 deg. C	0 to 40 deg. C
	Storage temperature	-30 to 65 deg. C	-30 to 65 deg. C
	Vibration *Note2	20Hz to 200Hz to 20Hz (5min./cycle), acceleration 10G, 3 directions 30 min. each	20Hz to 200Hz to 20Hz (5min./cycle), acceleration 10G, 3 directions 30 min. each
	Shock *Note2	Acceleration 70G, half amplitude 6ms, 3 directions 3 times each	Acceleration 70G, half amplitude 6ms, 3 directions 3 times each
	Standard compliancy	Case Type: EMS: EN61000-6-2, EMI: EN55011	Case Type: EMS: EN61000-6-2, EMI: EN55011
	RoHS	RoHS compliance	RoHS compliance

\*Note1: As for the 10,12bit output, clock speed should be slow to obtain the correct frame rate.

\*Note2: Lens: COSMICAR/PENTAX,C1614-M with C-Adaptor

## Spectral Sensitivity Characteristics

STC-SC83USB (with IR cut filter)

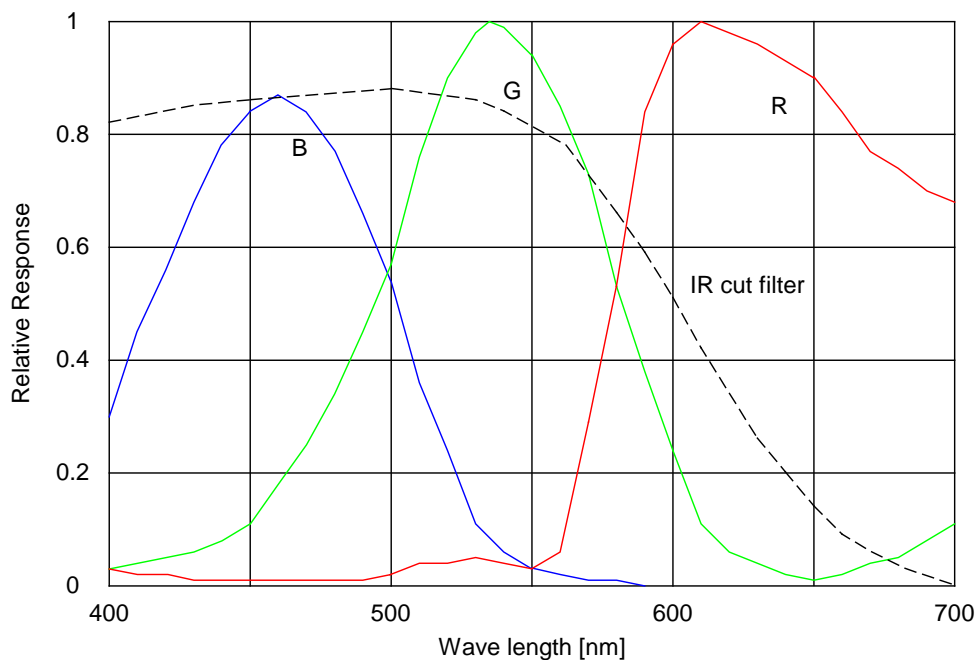


Figure 4.Spectral Sensitivity Characteristics on STC-SC83USB (with IR cut filter)

STC-SB83USB

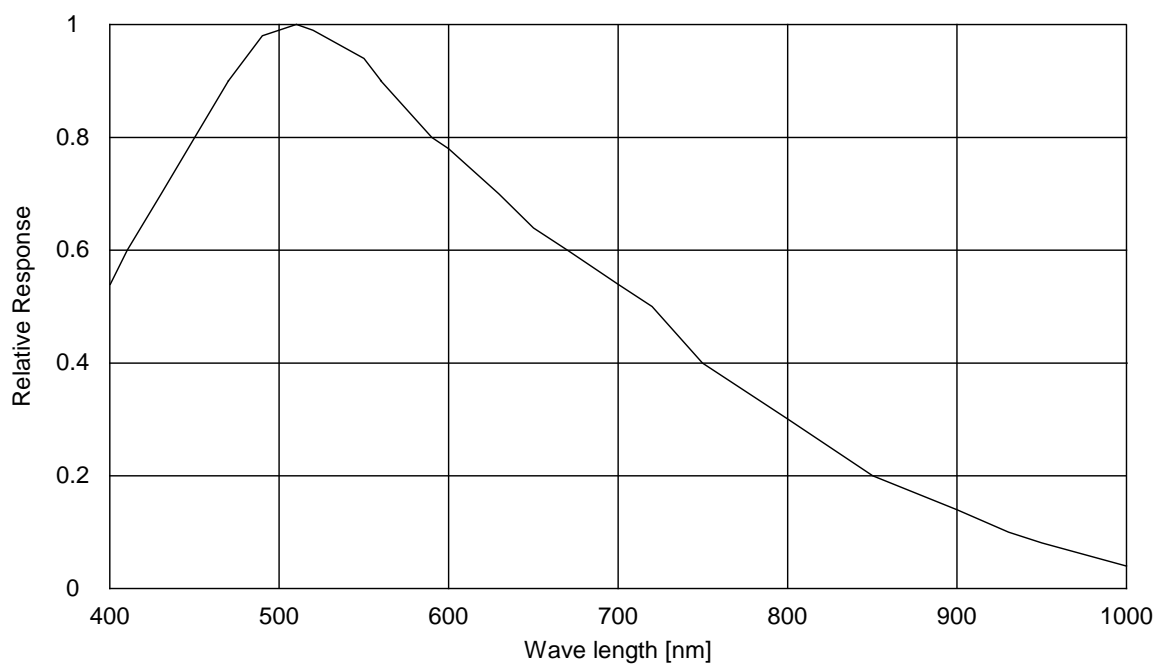


Figure 5.Spectral Sensitivity Characteristics on STC-SB83USB

## 2.1.3 STC-SC133USB / STC-SB133USB

**Table 3.Specifications of STC-SC133USB / STC-SB133USB**

**Bold: Initial Value**

Product		STC-SC133USB	STC-SB133USB
Electronic Specifications	Image Sensor	1/3" interline 1.3M color progressive CCD: ICX445AQ (Sony)	1/3" interline 1.3M monochrome progressive CCD: ICX445AL (Sony)
	Total picture elements	1348 (H) x 976 (V)	1348 (H) x 976 (V)
	Effective picture elements	1296 (H) x 966 (V)	1296 (H) x 966 (V)
	Chip size	6.26 (H) x 5.01 (V) mm	6.26 (H) x 5.01 (V) mm
	Cell size	3.75 (H) x 3.75 (V) $\mu$ m	3.75 (H) x 3.75 (V) $\mu$ m
	Scanning system	Progressive	Progressive
	Resolution	1280 (H) x 960 (V) (Full scanning) 1280 (H) x 440 (V) (1/2 partial scanning) 1280 (H) x 168 (V) (1/4 partial scanning)	1280 (H) x 960 (V) (Full scanning) 1280 (H) x 440 (V) (1/2 partial scanning) 1280 (H) x 168 (V) (1/4 partial scanning)
	Scanning methods	<b>Full scanning,</b> 1/1 partial scanning, 1/2 partial scanning, 1/4 partial scanning, Variable partial scanning	<b>Full scanning,</b> 1/1 partial scanning, 1/2 partial scanning, 1/4 partial scanning, Variable partial scanning, Binning scanning, Binning 1/1 partial scanning, Binning 1/2 partial scanning, Binning 1/4 partial scanning, Binning variable partial scanning
	Maximum frame rate	<b>22.40 fps</b> (Normal) / 11.20 fps (1/2 clock) / 5.60 fps (1/4 clock) 44.81 fps (Normal) / 22.40 fps (1/2 clock) / 11.20 fps (1/4 clock) 89.80 fps (Normal) / 44.90 fps (1/2 clock) / 22.45 fps (1/4 clock)	<b>22.40 fps</b> (Normal) / 11.20 fps (1/2 clock) / 5.60 fps (1/4 clock) 44.81 fps (Normal) / 22.40 fps (1/2 clock) / 11.20 fps (1/4 clock) 89.80 fps (Normal) / 44.90 fps (1/2 clock) / 22.45 fps (1/4 clock)
	Pixel frequency	36.818 MHz (Normal) / 18.409 MHz (1/2 clock) / 9.20453 MHz (1/4 clock)	36.818 MHz (Normal) / 18.409 MHz (1/2 clock) / 9.20453 MHz (1/4 clock)
	Video output	8bit / 10bit / 12bit *Note1	8bit / 10bit / 12bit *Note1
	Minimum scene illumination *Note2	8.09lx at F1.2	0.09lx at F1.2
	Sync. System	Internal	Internal
	Electronic shutter	Auto / <b>Manual</b> (software selectable)	Auto / <b>Manual</b> (software selectable)
	Normal	1/100,000 to 1/22.40 seconds ( <b>default:1/22.40 seconds</b> )	1/100,000 to 1/22.40 seconds ( <b>default:1/22.40 seconds</b> )
	1/2 clock	1/100,000 to 1/11.20 seconds	1/100,000 to 1/11.20 seconds
	1/4 clock	1/100,000 to 1/5.60 seconds	1/100,000 to 1/5.60 seconds
	Gain	Auto / <b>Manual</b> (software selectable, <b>default: x3.55</b> )	Auto / <b>Manual</b> (software selectable, <b>default: x3.55</b> )
	Gamma	<b>Manual</b> (software selectable, <b>default: 1</b> )	<b>Manual</b> (software selectable, <b>default: 1</b> )
	White balance	<b>Auto</b> / Manual / One shot (software selectable)	<b>Auto</b> / Manual / One shot (software selectable)
	Trigger mode	Free-run / Edge preset trigger / Pulse width trigger / Start & stop trigger (software selectable) (Hardware trigger and Software trigger are available)	Free-run / Edge preset trigger / Pulse width trigger / Start & stop trigger (software selectable) (Hardware trigger and Software trigger are available)
Mechanical Specifications	Camera Reset	Support on Pin 5	Support on Pin 5
	LED Status	Green(Flicker):Power-On, Green:Camera works	Green(Flicker):Power-On, Green:Camera works
	Pixel Blemish Correction	64 Points	64 Points
	Input/output	USB2.0 High speed	USB2.0 High speed
	Power	+5 V through USB connector (+4.4 to +5.25V) Less than 1.5W	+5 V through USB connector (+4.4 to +5.25V) Less than 1.5W
Environmental Specifications	Dimensions	Board Type::36(W) x 36(H) x 15.3(D) CS-Mount(without USB connector)	Board Type::36(W) x 36(H) x 15.3(D) CS-Mount(without USB connector)
	Lens mount	CS mount / MicroLens Mount (M12 P0.5) / None Mount	CS mount / MicroLens Mount (M12 P0.5) / None Mount
	Weight	Approximately 16g	Approximately 16g
	Interface connector	USB: mini-B USB connector IO Connector : SM05B-SRSS-TB (JST) 5pin	USB: mini-B USB connector IO Connector : SM05B-SRSS-TB (JST) 5pin
	Operational temperature	0 to 40 deg. C	0 to 40 deg. C
Environmental Specifications	Storage temperature	-30 to 65 deg. C	-30 to 65 deg. C
	Vibration *Note2	20Hz to 200Hz to 20Hz (5min./cycle), acceleration 10G, 3 directions 30 min. each	20Hz to 200Hz to 20Hz (5min./cycle), acceleration 10G, 3 directions 30 min. each
	Shock *Note2	Acceleration 70G, half amplitude 6ms, 3 directions 3 times each	Acceleration 70G, half amplitude 6ms, 3 directions 3 times each
	Standard compliance	Case Type: EMS: EN61000-6-2, EMI: EN55011	Case Type: EMS: EN61000-6-2, EMI: EN55011
	RoHS	RoHS compliance	RoHS compliance

\*Note1: As for the 10,12bit output, clock speed should be slow to obtain the correct frame rate.

\*Note2: Lens: COSMICAR/PENTAX,C1614-M with C-Adaptor

## Spectral Sensitivity Characteristics

STC-SC133USB (with IR cut filter)

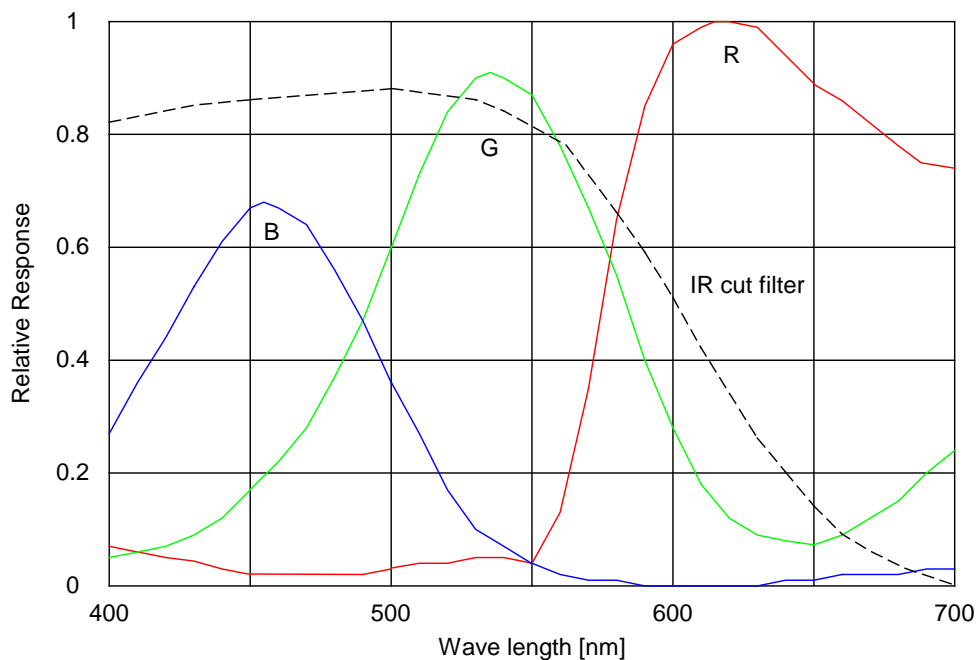


Figure 6.Spectral Sensitivity Characteristics on STC-SC133USB (with IR cut filter)

STC-SB133USB

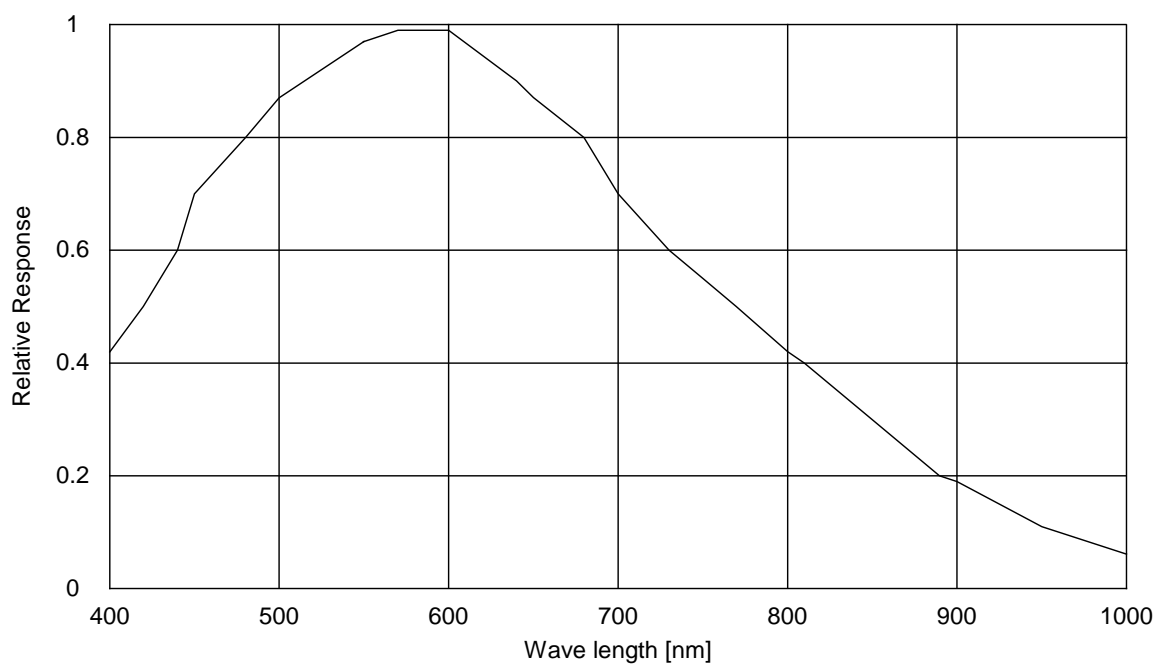


Figure 7.Spectral Sensitivity Characteristics on STC-SB133USB

## 3 Interface Connector Specifications(Board Type)

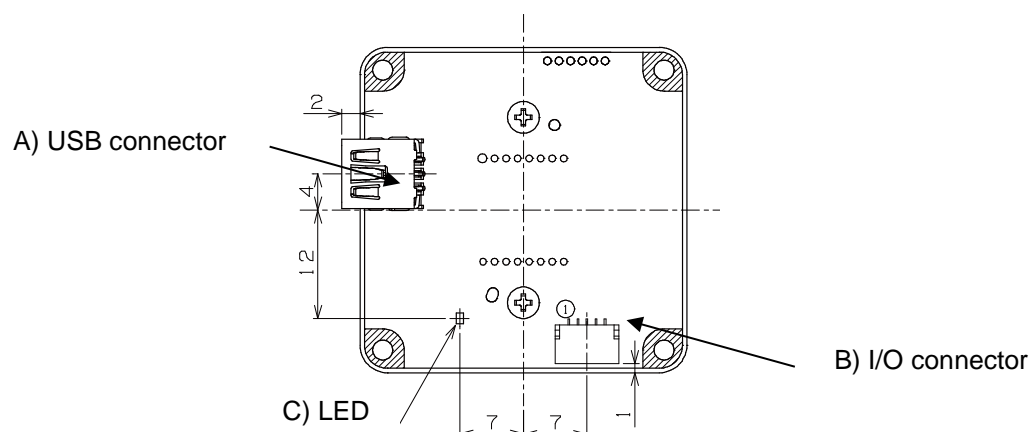


Figure 8.Back view on STC-SC/SB\*\*USB Series

- A) USB connector: Mini-B USB type
- B) I/O connector: Angle : SM05B-SRSS-TB (JST) 5pin or equivalent  
Straight(Option) : BM05B-SRSS-TB (JST) 5pin or equivalent  
Cable Side: SHR-05V-S-B or equivalent  
This connector is for the input and output signals.  
Trigger input and the output signals can be assigned through the camera setting communication.  
**The power in the connector is for the input / output signals, NOT for the camera power.**

Pin assignment

Table 4.Pin assignment on STC-SC/SB\*\*USB Series

Pin	Singal	Function	IO	Electric Specification	Default
1	IO_GND	IO GND	-	IO GND	-
2	IO_VCC	IO Power	IN	+2.0 to 5.0Vdc	-
3	IO_OUT	Camera Output	OUT		No-Function
4	IO_IN	Camera Input	IN		No-Function
5	RST	Camera Reset	IN		Enable

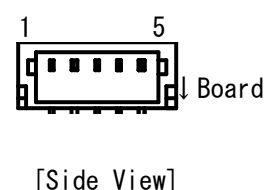


Figure 9.Connector on the rear panel

Input and output signals are isolated.

**Reset Port: Pin N is assigned as Rest. When camera does not recognize on PC. Once Reset signal is inputted, camera will reboot without plug-out the USB cable.**

- C) LED                      Green (Flicker) : Power-ON  
                                    Green : Camera works

## 4 Input / Output signals specifications

### 4.1 Input signals specifications

#### 4.1.1 Function for the input signals

The following functions can be configured for the input signals (IN1) through the software.

**Table 5.Function table on Input**

No.	Functions	Polarity
1	No signal (Default)	-
2	General input	-
3	Trigger signal input	Positive / Negative

The polarity for the trigger signal input can be selectable.

#### 4.1.2 Characteristics of the input signals

Input signal level: High: IO VCC IN (+2.0 to +5.0V)

Low: Smaller than 0.8V

Hardware trigger pulse width: more than 0.1 usec

## 4.1.3 Input signal circuit (Include reset signal)

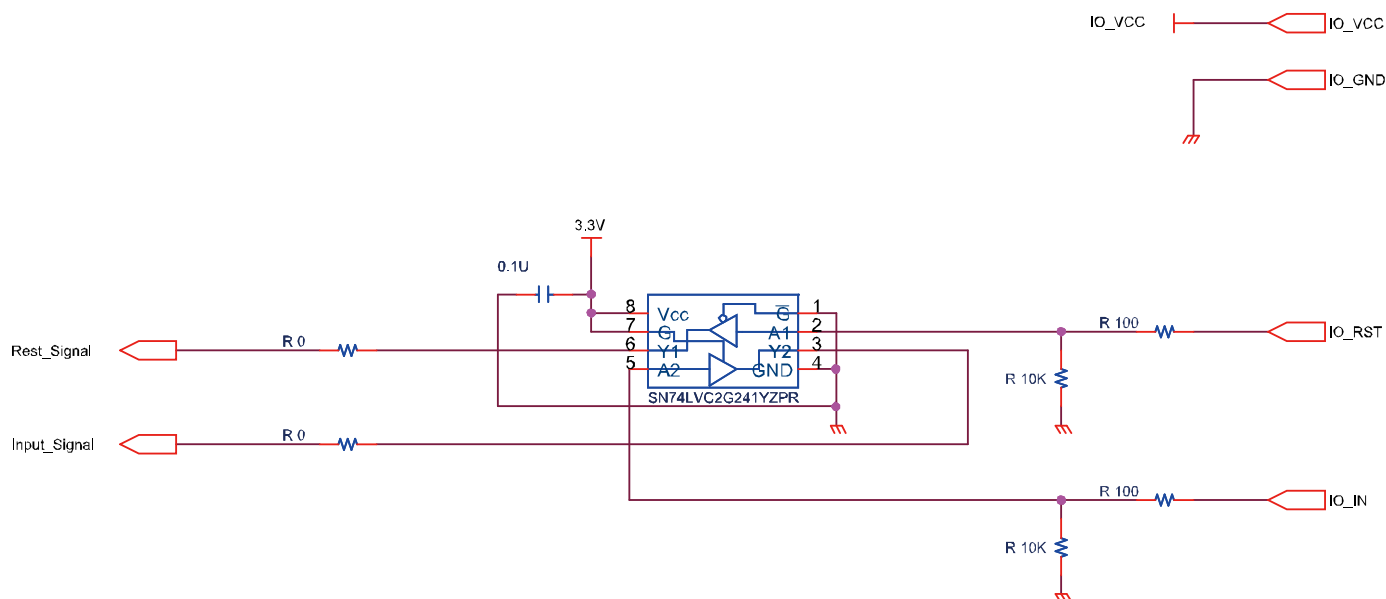


Figure 10.Input circuit diagram

## 4.1.4 Reset signal

The camera will be reset after 5 seconds high signal on Pin 5.

## 2. Output signals specifications

### 2.1 Function for the output signals

The following functions can be configured for the output signals (OUT) through the software on Pin 3.

**Table 6..Function table on Output**

No.	Functions	Polarity
1	No signal (Default)	-
2	General output	-
3	Trigger signal output	Positive / Negative
4	Exposure end signal output	Positive / Negative
5	CCD read out end signal output	Positive / Negative
6	Strobe signal output (Time setting)	Positive / Negative
7	Strobe signal output (Exposure time)	Positive / Negative

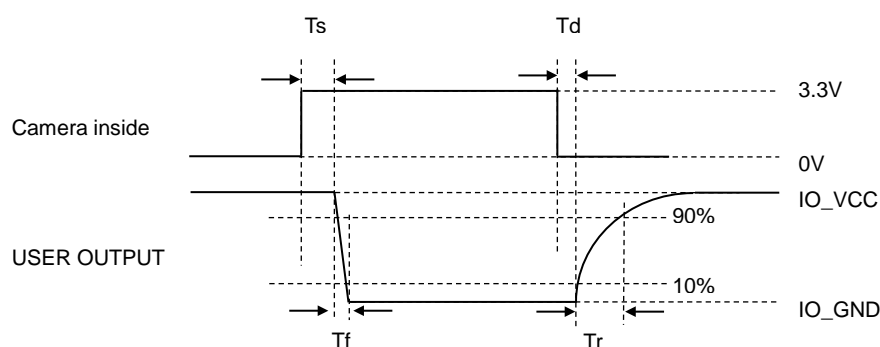
The polarity for the trigger signal, the exposure end signal, the CCD read out end signal, the strobe signal (time setting) and the strobe signal (exposure time) can be selectable.

### 2.2 Characteristics of the output signals

Output signal level: High: IO VCC IN (+3.0 to +26.4V)  
Low: Smaller than 0.8V

Output signal duration: The signal duration should be longer than “Tf + Tr”.  
Please check “Output signal response timings” for Tf and Tr.  
The signal duration can adjust by the software.

Output signal response timings:



**Figure 11.Output response time**

**Table 7.Output response time**

	IO_VCC			
	3.3[V]	5.0[V]	12[V]	24[V]
Td	2.80 [us]	2.76	2.72 [us]	2.54
Tr	1.86 [us]	1.95	1.74 [us]	1.95
Ts	0.07 [us]	0.07	0.08 [us]	0.08[us]
Tf	0.06[us]	0.07	0.12 [us]	0.18



## 2.3 Output signal circuit

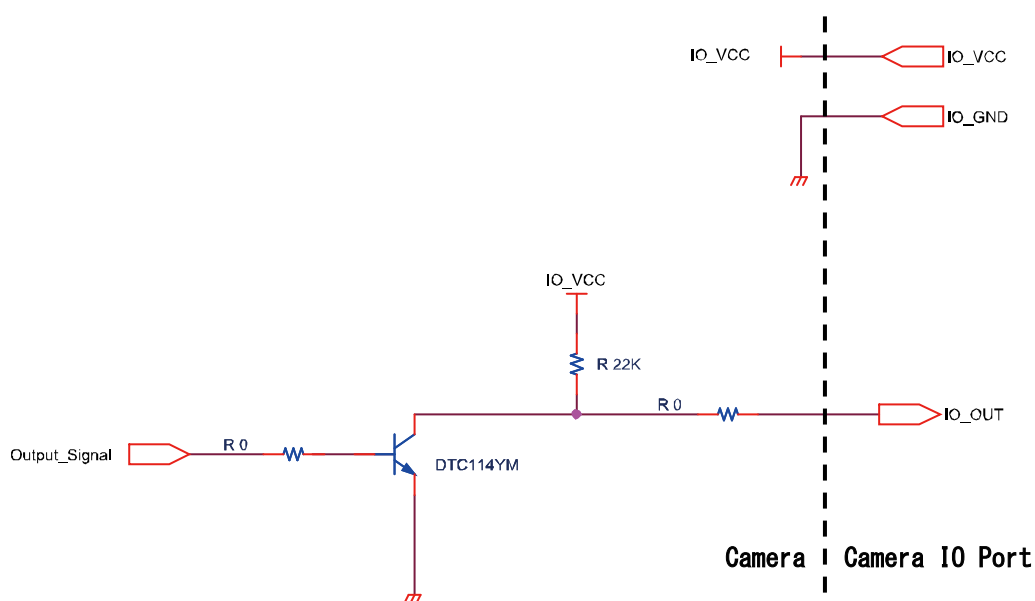


Figure 12. Output circuit diagram

## 5 Dimensions

### 5.1 STC-SCxxxUSB-BxCS ( Color, Board Type, CS-Mount, USB Angle/Straight)

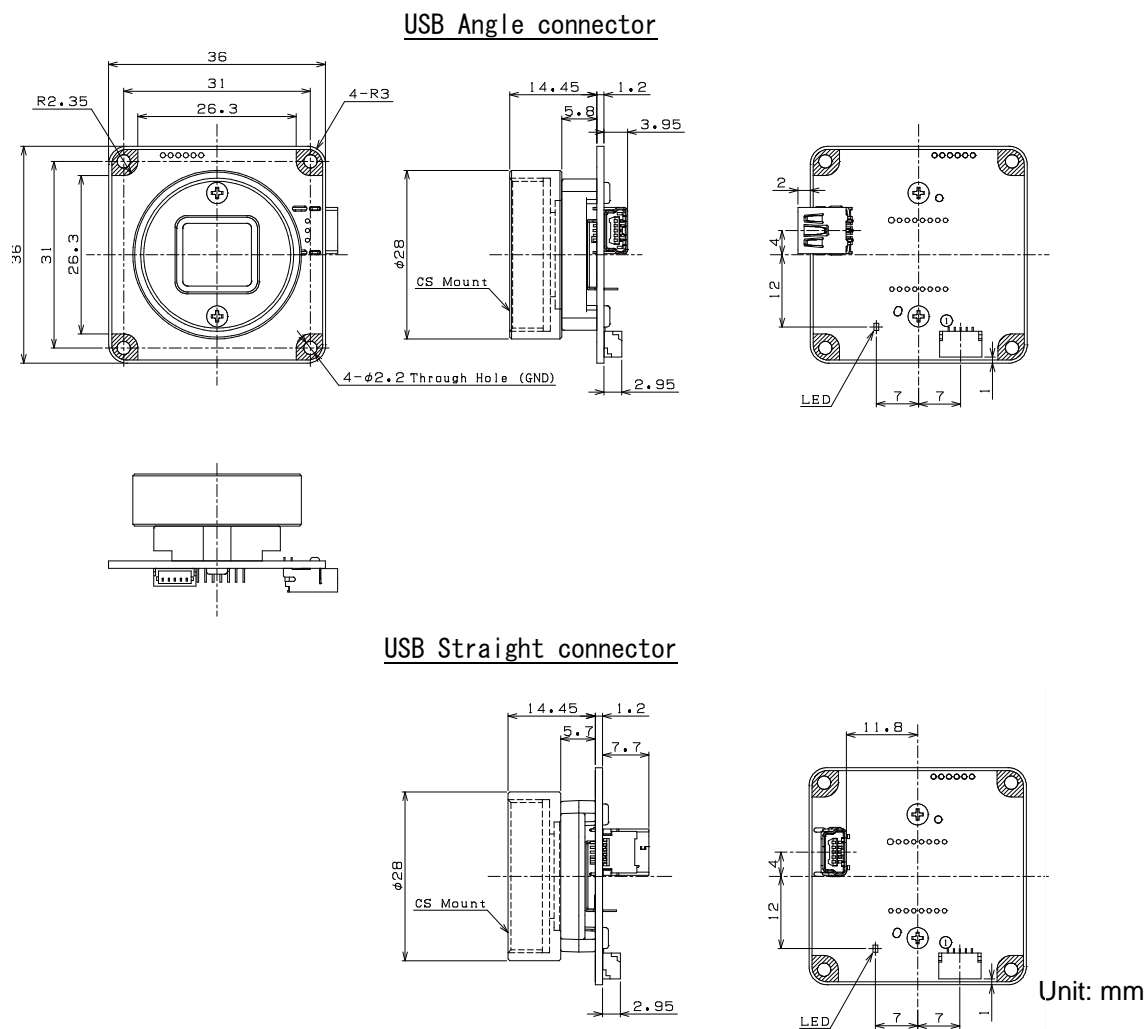
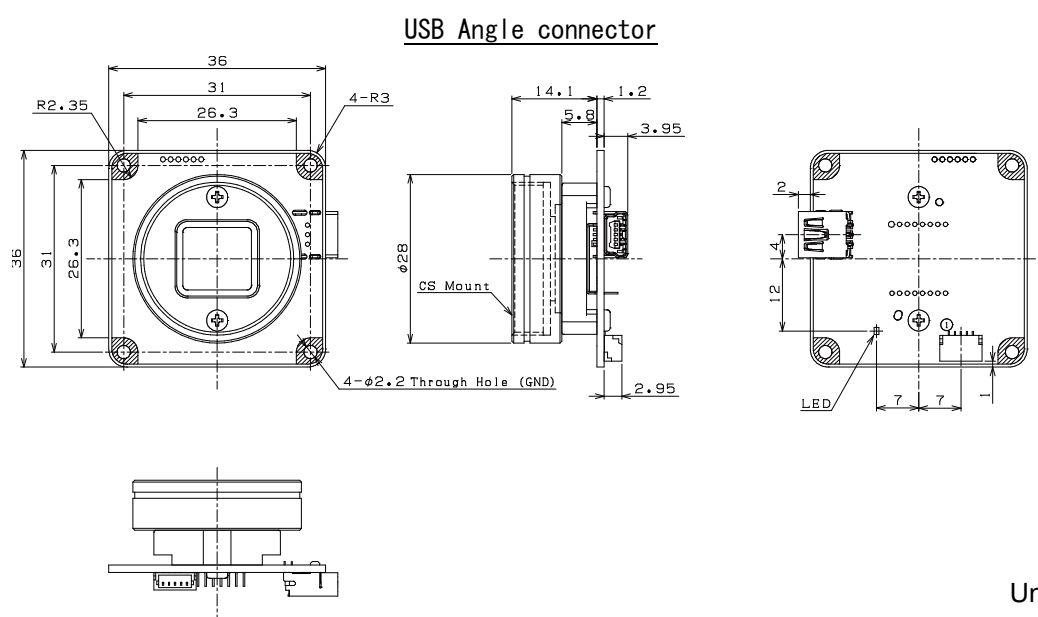


Figure 13.Mechanical dimensions(STC-SCxxxUSB-BxCS)

## 5.2 STC-SBxxxUSB-BLCS ( Monochrome, Board Type, CS-Mount, USB Angle/Straight\* )

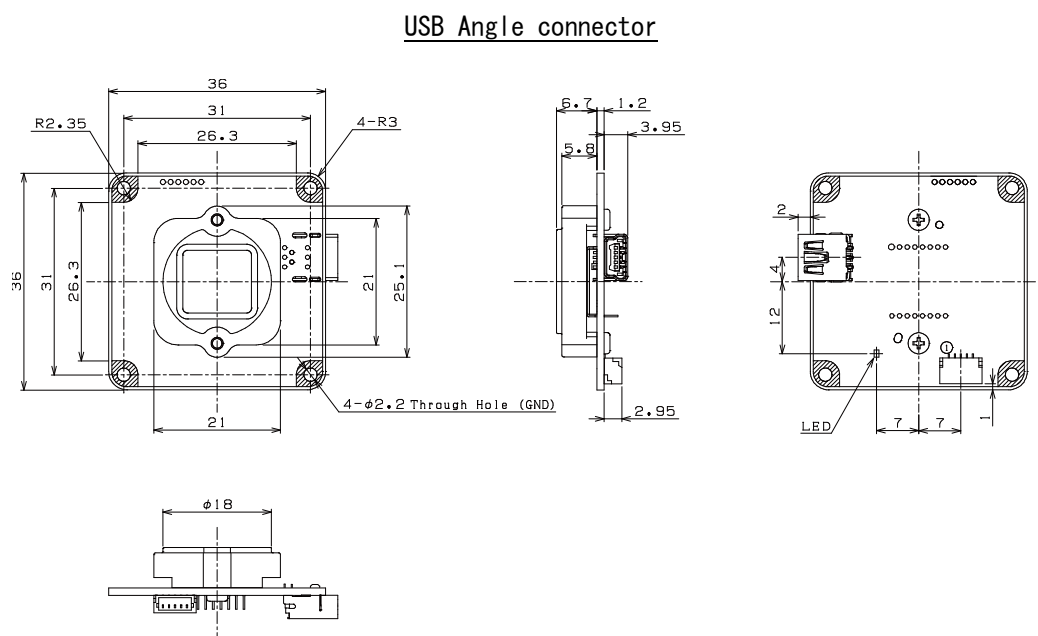
\*Note: As for the USB Straight connector dimensions, please refer to the [Fig13](#).



**Figure 14. Mechanical dimensions(STC-SBxxxUSB-BLCS)**

## 5.3 STC-SCxxxUSB-BL / STC-SBxxxUSB-BL ( Color/Monochrome, Board Type, No-Mount, USB Angle/Straight\* )

\*Note: As for the USB Straight connector dimensions, please refer to the [Fig13](#).

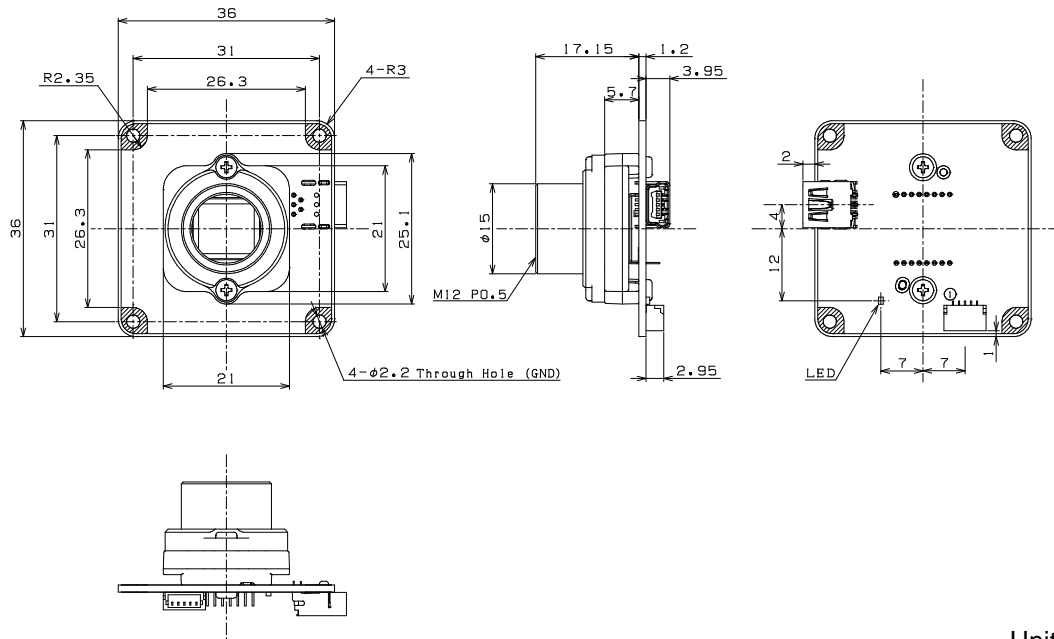


**Figure15.Mechanical dimensions(STC-SCxxxUSB-BL / STC-SBxxxUSB-BL)**

#### 5.4 STC-SCxxxUSB-BLL ( Color, Board Type, Fixed Focus, USB Angle/Straight\*)

\*Note: As for the USB Straight connector dimensions, please refer to the [Fig13.](#)

### USB Angle connector



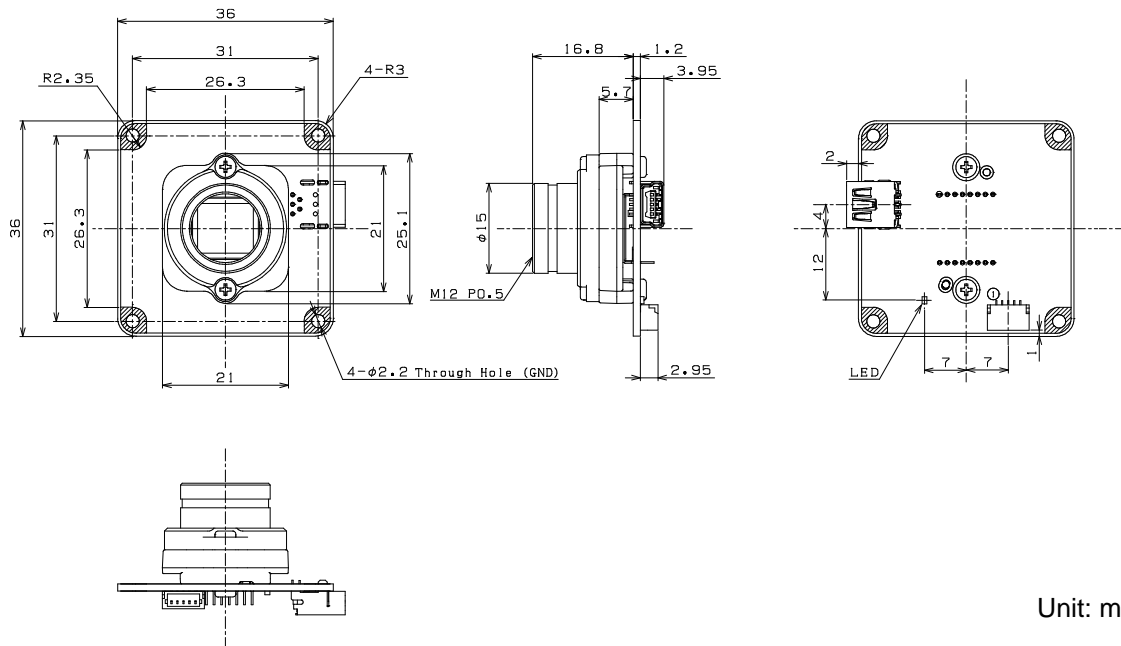
Unit: mm

**Figure 16.Mechanical dimensions(STC-SCxxxUSB-BLL)**

### 5.5 STC-SBxxxUSB-BLL (Monochrome, Board Type, Fixed Focus, USB Angle/Straight\*)

\*Note: As for the USB Straight connector dimensions, please refer to the [Fig13.](#)

### USB Angle connector

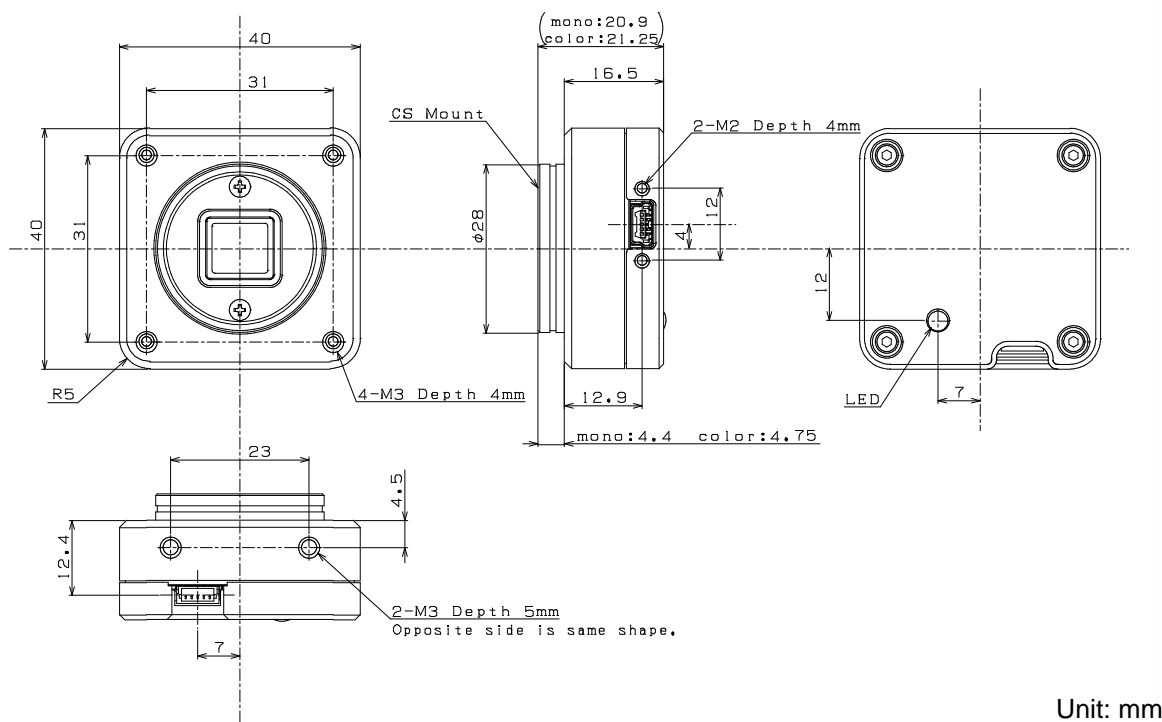


Unit: mm

**Figure 17.Mechanical dimensions(STC-SBxxxUSB-BLL)**

## 5.6 STC-SCxxxUSB-AL / STC-SBxxxUSB-AL ( Color/Monochrome, Cased Type, CS-Mount\* )

\*Note: As for the USB Straight connector dimensions, please refer to the [Fig13](#).



**Figure 18.Mechanical dimensions(STC-SCxxxUSB-AL / STC-SBxxxUSB-AL)**

## 6 Revisions

Rev	Date	Changes	Note
1.00	2013/08/23	New document	
1.01	2013/09/13	Revised: Minimum scene illumination	
1.02	2013/11/25	Revised: IO port description	
1.03	2013/11/29	Revised: Added USB straight connector information	
1.04	2014/01/17 2014/02/19	Revised: Added cased type model, Added explanation around IO port(IO table and Trigger Pulse) Revised -ALCS ->---AL on cased type	
1.05	2014/03/12 2014/12/18	Revised: Replaced the drawing of -BxL model Added Information of IO connector	
1.06	2015/03/17	Revised: Maximum shutter speed to 1/100,000 sec	
1.07	2015/11/20	Revised: Company name	

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